

Pseudomonas

Pseudomonas aeruginosa (soil, water, skin flora)

On microscope:

- Rod shaped
- Gram-negative
- polar flagella(motile)
- Aerobic
- Non-spore forming



On agar:

Mucoid colonies + fruity odor.

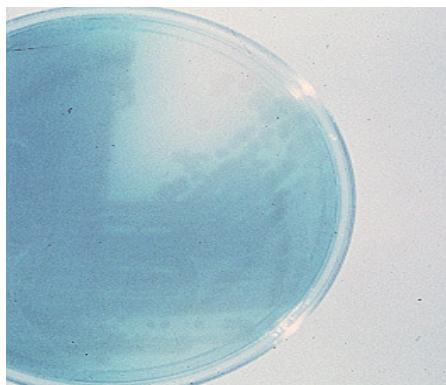
Clear colonies on MacConkey (non-lactose fermenter)

Beta hemolytic (on blood agar)

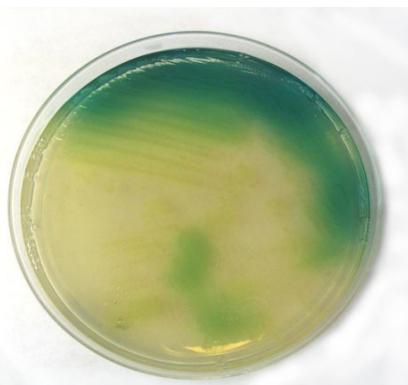


Pigments:

Pyocyanin (blue-green)



Pyovedine (yellow-green & fluorescent)



Pyorubin (red-brown)



Biochemical tests:

Indole	- ve
Methyl red	
Voges Proskauer	
Citrate	+ ve

Urease -ve

Catalase +ve Oxidase +ve

TSI (Kligler Iron) K/K no H₂S

- Confirmatory tests include production of the blue-green pigment pyocyanin on Cetrimide agar.

Pathogenesis:

Respiratory tract, urinary tract, **burns, wounds** and sepsis.

Most infectious → **burn injuries** & otitis externa

Medical devices (e.g. catheters)

Rx:

Salicylic acid can inhibit pyocyanin production (virulent factor)

Aminoglycosides, Ciprofloxacin, Cephalosporin

Proteus

P. vulgaris, P. mirabilis, and P. penneri are opportunistic

Proteus mirabilis

On microscope:

Gram – ve, rod shaped, flagellated.



On agar:

Swarming colonies.

Pale Non-lactose fermenter (on a MacConkey agar), Facultative anaerobic

Distinct bad odor



Biochemical tests:

Indole -ve

Methyl Red +ve

Voges-Proskauer -ve

Citrate agar test +ve

I M V C

- + - +

Catalase + ve oxidase -ve

Urease +ve

Kliglar K/A / no gas /H₂S +ve

Harmless strains:

Human intestinal tract flora

Pathogenic strains:

- *Proteus mirabilis* causes 90% of *Proteus* infections.
- UTI → Cystitis, Urethritis, Pyelitis → fever, nausea, hematuria, dysuria, hesitancy ...
- *Proteus* urease alkalinize the urine → struvite stone (UTI, flank pain, or hematuria)
- SIRS, colonize the lungs and prostatitis.

Rx:

Tetracycline, Cephalosporin